UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Office of Water
Proposed Water Quality Trading Policy

I. Background

The Clean Water Act (CWA)[1] was enacted in 1972 to restore and maintain the chemical, physical, and biological integrity of the nation's waters. It established a national policy that prohibits the discharge of toxic pollutants in toxic amounts and called for the discharge of pollutants to be eliminated by 1985. The CWA established interim goals for protecting fish, wildlife and recreational uses. It established financial assistance for the construction of publicly owned waste treatment facilities, requirements for area-wide waste treatment management planning and major research and demonstration efforts to develop pollution control technology. The CWA established a national policy for development and implementation of programs so the goals of the Act could be met by addressing point and nonpoint sources of pollution. Congress recognized and preserved the primary responsibilities and rights of the States to prevent, reduce and eliminate pollution.

The application of technology-based requirements through the National Pollutant Discharge Elimination System (NPDES) permit program has achieved tremendous success in controlling point source pollution and restoring the nation's waters. By 1990 over 87% of the major municipal facilities and 93% of major industrial facilities were in compliance with NPDES permit limits. EPA has estimated that in 1997, annual private point source control costs were about $14 billion and public point source costs were about $34 billion[2].

Despite these accomplishments almost 40% of currently assessed rivers, streams and lakes still do not support their designated uses[3]. Today sources of pollution such as urban storm water, agricultural runoff and atmospheric deposition threaten our nation's waters. Nutrient and sediment loading from agriculture and storm water are significant contributors to water quality problems as evidenced by Hypoxia in the Gulf of Mexico and a decreased fishery in Chesapeake Bay. Population growth and development place increasing demands on the environment making it more difficult to achieve and maintain water quality standards.

Finding solutions to these complex water quality problems requires innovative strategies that are aligned with core water programs. Water quality trading is an innovative approach that offers greater efficiency in achieving water quality goals on a watershed basis.

The National Cost to Implement Total Maximum Daily Loads (TMDLs) Draft Report estimates that flexible approaches to improving water quality could save $900 million dollars annually

[1] Federal Water Pollution Control Act (Public Law 92-500, as amended).
[2] A Retrospective Assessment of the Costs of the Clean Water Act: 1972 – 1997 (EPA October, 2000).
[3] About 40 percent of the nation's waters have been assessed by States and Tribes pursuant to Section 305(b) of the Clean Water Act. The proportion of non-assessed water that do not meet designated uses is likely lower since assessments tend to be focused in known problem areas.

compared to the least flexible approach (August 2001). EPA believes that market-based approaches such as water quality trading provide greater flexibility and have potential to achieve water quality and environmental benefits greater than can be achieved under current practices and policies.

Market-based programs can achieve water quality goals at a substantial economic savings. Nitrogen trading among publicly owned treatment works that discharge into Long Island Sound, is expected to save over $200 million dollars in upgrading treatment facilities to meet water quality goals. Market-based approaches also create economic incentives for innovation, emerging technology, voluntary reductions and greater efficiency in improving the quality of the nation's waters.

This policy addresses issues left open by and limitations encountered implementing projects and programs under EPA's January 1996 Effluent Trading In Watersheds Policy ("Effluent Trading Policy") and May 1996 Draft Framework for Watershed-Based Trading ("Framework"). EPA believes that providing guidance through policy is appropriate to address outstanding issues and promotes the implementation of water quality trading and other market-based programs by States and Tribes. This policy provides necessary guidance for States and Tribes to implement programs designed to address water quality and economic issues within their jurisdictions.

A number of successful pilot trading projects have recently been completed and a number of States are developing water quality trading programs. These initiatives underscore the need and provide the basis for issuing the proposed policy. The lessons learned from these efforts provide workable innovative solutions to regulatory barriers that should be addressed in order to encourage trading to implement total maximum daily loads, offset growth and development and establish economic incentives for going beyond the minimum requirements of the CWA.

II. Water Quality Trading Policy Statement

EPA is issuing a revised policy encouraging States and Tribes to implement water quality trading for nutrients, sediments and other pollutants where opportunities exist to achieve water quality improvements at reduced costs.

This policy supercedes EPA's January 1996 Effluent Trading In Watersheds Policy. It strengthens and expands EPA's support for watershed-based trading set forth in EPA's May 1996 Draft Framework for Watershed-Based Trading (Draft Framework). This policy is intended to be interpreted in conjunction with the Draft Framework to the extent practicable. The policy should be given precedence over any inconsistencies with the Draft Framework. This policy sets forth what EPA believes is necessary for water quality trading to be successful and identifies

provisions of acceptable trading programs that are consistent with the CWA and federal regulations, including: requirements to obtain permits (Sections 402 and 404), antibacksliding provisions (Section 303(d)(4) and Section 402(o)), the development of water quality standards and antidegradation policy (Section 303), federal NPDES permit regulations (40 CFR Parts 122, 123 and 124) and water quality management plans (40 CFR Part 130).

This policy does not establish or affect any legal rights or obligations nor is it a final determination on the issues addressed in this policy. EPA's decision in any particular trade, project or program will be based on the applicable requirements of federal law and regulations and the specific facts and circumstances involved.

A. Purpose.

The purpose of this policy is to facilitate States and Tribes developing and implementing water quality trading programs that implement the requirements of the CWA and federal regulations in more flexible ways and reduce the cost of improving and maintaining the quality of the nation's waters. More specifically, the policy is intended to encourage the adoption of trading programs that facilitate implementation of TMDLs, reduce the costs of compliance with CWA regulations, establish incentives for voluntary reductions and promote watershed-based initiatives that result in greater water quality and environmental benefits than would otherwise be achieved under the CWA.

B. Policy.

1. Water quality trading and other market-based programs must be consistent with the CWA.

2. EPA supports trading that involves nutrients (total phosphorus and total nitrogen) or sediments. EPA recognizes that carefully and properly designed programs can achieve water quality goals and ancillary environmental benefits from trading of pollutants other than nutrients and sediments. EPA supports trading for pollutants other than nutrients and sediments where such trading achieves a net water quality or environmental benefit and does not cause adverse localized impacts. EPA also supports trading among pollutants (cross-pollutant) where appropriate and where adequate information exists to establish and correlate similar impacts on water quality. These other types of trades should be reviewed on a case-by-case basis to ensure consistency with State and Tribal water quality standards. EPA also believes that these types of trades should receive prior approval by issuance of a general or facility-specific permit; or, occur in the context of a TMDL approved by a State or Tribe and EPA to ensure adequate public access to information and provide an opportunity for public notice, comment and hearing.

3. EPA supports and encourages States and Tribes to implement water quality trading programs for many purposes, including the following:

- Reducing the cost of compliance with water quality-based requirements.
- Offsetting growth and maintaining water quality.
- Achieving early reductions and progress towards water quality standards pending development of TMDLs for impaired waters.
- Reducing the cost of implementing TMDLs through greater efficiency and flexible approaches.
- Establishing economic incentives for voluntary reductions from all sources, especially agriculture and urban storm water runoff.
- Achieving greater environmental benefits than those under existing regulatory programs. EPA supports the creation of water quality trading credits in ways that achieve ancillary environmental benefits beyond reductions in specific pollutant loads, such as the creation and restoration of wetlands, floodplains and wildlife and/or waterfowl habitat.
- Developing other market-based programs that bundle ecological services to achieve multiple environmental and economic benefits.

4. EPA supports water quality trading programs that include all the following general elements that are necessary for programs to be successful and specific provisions that EPA believes should be in any acceptable trading programs.

A. General Elements Of Successful Trading Programs:

1. Clear legal authority for trading to occur. This may be established by States or Tribes through legislation, rule making, incorporating provisions for trading into NPDES permits, establishing provisions for trading in TMDLs, or a combination thereof.

2. A fungible, clearly defined, unit of trade. Pollutant reduction credits and allowances are examples of tradable units for water quality trading. These may be expressed in rates or mass per unit time as appropriate to be consistent with the time periods that are used to determine compliance with NPDES permit limitations or other regulatory requirements.

3. Standardized protocols to quantify pollutant loads and load reductions, pollutant reduction credits, allowances or other tradable units. States and Tribes should develop procedures to account for the generation and use of credits in NPDES permits and discharge monitoring reporting forms. EPA believes this is necessary to track the generation and use of credits and allowances between sources and assess compliance.

   Methods and procedures used by the United States Department of Agriculture, Natural Resource Conservation Service (NRCS) may be used for trading to determine edge of field sediment loss for agricultural nonpoint source runoff. For nutrient trading, EPA recommends representative soil sampling to determine nutrient content and loads associated with sediment loss. EPA supports the use of NRCS technical field guidance for estimating load reductions achieved through installing controls and implementing management practices to reduce soil erosion. States and Tribes should develop site-specific delivery ratios or procedures to account for distance from edge of field to the stream segment, water body or watershed where trading occurs.

   EPA recommends estimating pollutant loads, load reductions and credits from storm water runoff, other than agriculture, based on local hydrology and pollutant loading factors that relate land use patterns, percent imperviousness and controls or management practices in a watershed to per acre pollutant loads, where other methods are not specified in a permit or regulation. This is done by determining pollutant-specific loading factors for each land use type in the watershed or area where trading occurs, calculating the average annual storm water runoff volume from pervious and impervious areas for each combination of land use type and control and management practices; and, computing the average total annual load for the watershed or trading area by the sum of all land use loading factors multiplied by the area for each land use type.

4. Mechanisms for determining compliance and ensuring enforcement. These may include a combination of record keeping, monitoring, reporting and inspections. Compliance audits should be conducted frequently enough to ensure that a high level of compliance is maintained across the program. States and Tribes should establish clear enforceable mechanisms consistent with NPDES regulations that ensure legal accountability for the generation of credits and allowances that are traded. EPA also recommends that States and Tribes consider providing periodic accounting and reconciliation periods and establishing enhanced enforcement provisions for failure to generate the quantity of credits or allowances that are traded.

5. Public participation and access to information. EPA supports public participation in the development of water quality programs to strengthen program effectiveness and credibility.

Public access to real-time information is necessary for markets to function and water quality trading to occur. EPA encourages States and Tribes to make trading programs electronically available to the public using geographic information system (GIS) applications to provide real time information on the sources that trade, track the generation and use of credits or allowances traded on a watershed basis, publish bids, quantities exchanged and market prices where available, and delineate watershed and trading boundaries. This information is necessary for the market to function efficiently, allow easy aggregation of credits or allowances, reduce transaction costs and establish public credibility.

6. Program evaluations. Periodic assessments of environmental and economic effectiveness should be conducted and program revisions made as needed. Program evaluations should include provisions for ambient monitoring to ensure localized violations of water quality standards do not occur and document water quality conditions. Studies should be performed to quantify actual nonpoint source load reductions, validate nonpoint source pollutant removal efficiencies and determine whether the anticipated water quality objectives have been achieved. The number and type of trades, the price paid for pollutant reduction credits and allowances, transaction costs, and costs incurred to administer the program should be considered to assess economic performance of the program.

   The results of program evaluations should be made available to the public. An opportunity for comment should also be provided on changes to the program as necessary to ensure the water quality standards are achieved, trading does not result in localized impairment of existing or designated uses and that the program achieves the water quality objectives it was designed to.

B. Provisions To Be Consistent With The CWA:

1. All water quality trading should occur within a watershed for which a trading program has been established or a defined area for which a TMDL has been approved. Establishing defined trading areas that coincide with watershed or TMDL boundaries results in trades that affect the same water body or stream segment, guards against localized effects and helps ensure that water quality standards are maintained throughout the trading area and contiguous waters.

2. Sources and activities that are required to obtain a federal permit pursuant to Sections 402 or 404 of the CWA will do so before they may participate in a trading program.

3. EPA supports several flexible approaches for incorporating provisions for trading into NPDES permits issued to point sources that trade. In some cases, specific trades may be

identified in NPDES permits, including nonpoint source requirements where appropriate. In other cases, the NPDES permit may authorize and contain provisions for trading to occur. EPA supports several approaches for incorporating trading into point source NPDES permits: a) general conditions that allow trading to occur, b) the use of variable permit limits that may be adjusted up or down based on the quantity of credits generated or used; and/or, c) the use of alternate permit limits or conditions that establish restrictions on the amount of a point source's pollution reduction obligation that can be achieved by the use of credits if trading occurs. EPA also encourages the use of watershed general permits under Sections 121(b) and 119(c)(1) of the CWA, where appropriate, to establish pollutant-specific limitations for a group of sources in the same or similar categories to achieve net pollutant reductions and water quality goals through trading.

4. Notice, comment and opportunity for hearing must be provided for all NPDES permits (40 CFR 124). NPDES permit and fact sheets should describe how baselines and conditions or limits for trading have been established and how trading is consistent with water quality standards. EPA will not consider individual trades to be a modification of NPDES permits that contain authorization and provisions for trading to occur provided the public was given notice and an opportunity to comment and/or attend a public hearing at the time the permit was issued.

5. Where methods and procedures are specified by federal regulations or in NPDES permits, these should continue to be used for measuring compliance for point sources that engage in trading. EPA believes this is necessary to provide clear and consistent standards for measuring compliance and to ensure that appropriate enforcement action can be taken.

6. EPA does not support trading to comply with technology-based effluent limitations except as expressly authorized by federal regulations. Existing technology-based effluent guidelines for the iron and steel industry allow intraplant trading of conventional and toxic pollutants between outfalls (40 CFR 420.03) under certain circumstances.

   EPA will consider including provisions for trading in the development of new and revised technology-based effluent guidelines and other regulations to achieve technology-based requirements, reduce implementation costs and increase environmental benefits.

7. EPA will not consider backsliding triggered where a source makes surplus reductions and later decides to discontinue generating credits as long as the actual discharge level does not exceed the discharge level previously authorized by a permit prior to generating credits.

8. The baselines for trading to occur should be derived from and be consistent with water

quality standards. Where a TMDL has been developed and approved by EPA, the applicable point source waste load allocation and nonpoint source load allocation establish the baselines for trading. For trades that occur where water quality fully supports designated uses, and in impaired waters prior to a TMDL being established, the baseline for point sources should be established by the current permit water quality based effluent limitation or a performance requirement or management practice derived from water quality standards; and, the baseline for nonpoint sources should be the level of pollutant load associated with existing land uses and management practices that comply with applicable State or Tribal regulations. Reductions below baseline levels are necessary to create a pollutant reduction credit or surplus allowance that can be used or traded.

9. Any use of pollutant reduction credits or allowances that would cause a localized impairment of existing or designated uses at the point of use, or that would exceed an in-stream target established under a TMDL is not acceptable.

10. State or Tribal antidegradation policies should include provisions addressing when trading can occur without requiring antidegradation review. EPA will consider trades and trading programs that achieve a no net increase in the discharge or loading of the same pollutant in waters that fully support designated uses as satisfying the anti-degradation requirements of the CWA.

11. EPA supports pre-TMDL trading in impaired waters that achieves a net reduction of the pollutant or pollutants causing impairment as providing a direct water quality benefit and progress towards achieving water quality standards. EPA also supports pre-TMDL trading that results in a direct environmental benefit beyond pollutant load reductions to achieve progress towards restoring designated uses where reducing pollutant loads alone is not sufficient or as cost effective. EPA considers greater than 1:1 point/point source and point/nonpoint source trading ratios necessary to provide a net water quality benefit unless it can be demonstrated that 1:1 trading ratios are consistent with achieving progress towards meeting water quality standards or a direct environmental benefit beyond pollutant load reductions results in progress towards restoring designated uses.

12. Trading programs in impaired waters for which a TMDL has been approved by a State or Tribe and EPA should be consistent with the TMDL.

    Reductions greater than required to achieve the level of reductions established by a TMDL are necessary to create a surplus allowance. Only surplus or unused allowances should be traded after a TMDL has been approved. To be consistent with water quality standards, the cap established by the TMDL should not exceed the maximum amount of a given pollutant

the water body can assimilate and attain the applicable water quality standards. Allocation of the cap among and between point sources and or nonpoint sources is necessary to establish the respective baselines for trading to occur. Any trading activity that would cause the combined point source discharge and nonpoint source loading to exceed the cap would not be acceptable.

The margin of safety incorporated in the TMDL under current regulations addresses the uncertainty associated with the calculations of pollutant loads, water quality monitoring and modeling. In addition, the margin of safety should account for the uncertainty of load shifts between point and nonpoint sources that may result from trading; or, greater than 1:1 trading ratio should be established to do so.

13. Provisions for water quality trading should be included in water quality management plans that set forth explicit provisions for implementing a water quality trading program and describe how the program will be consistent with water quality standards, the development and implementation of TMDLs; and, incorporated into NPDES permits.

14. While EPA envisions that at least initially, most credits or allowances will be purchased by point sources as a means of complying with water quality based permit requirements, it may also be acceptable for trading programs to include provisions for the purchase of credits and/or allowances by other entities for the purposes of securing long-term improvements in water quality.